Remarks/Arguments:

The present invention relates to a digital broadcast receiving apparatus for receiving time division multiplex programs. Specifically, the operation start point of a variable gain circuit is varied **in response to** a detected electric field strength and a measured packet errors.

On page 2 of the Office Action, claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable by Akira (JP 04-090220) in view of Hiroaki (JP 2001-168748) and Todd (US 6,002,672). Furthermore, on page 3 of the Office Action, claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable by Rozanski (US 5,530,926) in view of Smith (US 6,009,124). It is respectfully submitted, however, that the claims are patentable over the art of record for the reasons set forth below.

Akira teaches a diversity receiver that switches between two antennas in response to a measured electric field level. Hiroaki teaches a digital signal receiver which controls the operation start point of a variable gain circuit. Todd teaches a diversity antenna system wherein a switch is controlled to select the antenna based on the detected electric field strength and bit error rate. Rozanski teaches a diversity receiver which also switches between two antennas based on detected electric field strength and bit error rate. Furthermore, Smith teaches a system that beam steers an antenna based on detected electric field strength and bit error rate.

Applicants' invention as recited by claim 1, includes a feature which is neither disclosed nor suggested by the art of record, namely:

> **... operation starting point controlling circuit that varies in operation starting point of a variable gain circuit in response to the detected electric field strength. Any measured errors ...**

Claim 1 relates to a receiver with a variable gain circuit. Specifically, the operation start point of the variable gain circuit is controlled **in response to** both the detected field strength from an antenna and a measured errors in the received data

packets. This feature is found in the originally filed application on page 14, line 15, to page 15, line 23, and furthermore in Fig. 4. No new matter has been added.

In the abstract, Hiroaki teaches a digital signal receiver that maintains good reception in the presence of input signals fluctuating at high speed. When input signals fluctuate, Hiroaki changes the operation start point on a variable gain circuit ("*controlling the operation start point of the variable gain circuit 2*").

On page 3, paragraph 2, the Official Action attempts to combine the variable gain circuit as taught by Hiroaki with the diversity receiver as taught by Todd. Specifically, col. 4, lines 3-34 of Todd, teaches switching between two antennas in response to received signal strength and bit error rate ("*RSSI and BER measurements in order to determine how to toggle RF switch 35 in order to select which antenna is to be used for reception*"). Applicants respectfully disagree with this prior art combination. It is known that Hiroaki teaches changing the operation start point of a variable gain circuit and Todd teaches measuring received signal strength and bit error rate. Their combination, however, does not teach changing the operation start point of the variable gain circuit **in response to** measured received signal strength and error rate. Receivers with conventional automatic gain control (AGC), typically **vary their gain with respect to the input signal level** (not with respect to received signal strength and bit error rate).

In similar art, Rozanski teaches a diversity receiver similar to Todd wherein received signal strength and bit error rate are used to determine the switching between antennas. Specifically, with reference to Fig. 1, Rozanski teaches measuring signal strength and bit error rate in order to switch between antennas 11 and 12. This feature is disclosed in col. 2, lines 25-30, and lines 45-47 ("*receive signal strength indicator (RSSI), bit error rate (BER) ... controller 17 will select the antenna with the best quality and reception to couple to the receiver 14*"). On page 4, paragraph 1, the Official Action attempts to combine the teachings of Rozanski with the teachings of Smith. Smith teaches a receiver wherein beam steering is performed in response to measured signal strength and bit error rate. This feature is supported in col. 2, lines 30-33 ("*generates antenna control signals to spatially steer the antenna subsystem based upon BER_PASS signal and the RSSI_PASS signal*").

In Fig. 4, Smith also teaches automatic gain control which controls amplifier 484, 492 and 494. Smith's automatic gain control controls the amplifiers in response to the input level coming into demodulator 498. This conventional automatic gain control is not responsive to the measured field strength and bit error rate. Therefore, it would not be obvious to combine teachings of Rozanski and Smith because their combination does not teach changing the operation start point of a variable gain circuit **in response to** a detected electric field strength and measured errors.

Applicants' representatives thank the Examiner for his time spent on the telephone interview of January 15, 2008. In the telephone interview, Applicants' representatives discussed the differences between the art of record and claim 1. In general, the references teach measuring received signal strength and bit error rate and also changing the operation start point of a variable gain circuit. The art of record, however, does not teach changing the operation start point of the variable gain circuit **in response to** the measured received signal strength and bit error rate. It should be noted that, while the receivers of the prior art teach automatic gain control, this conventional automatic gain control **varies the gain in response to the level of the input signal**. Conventional automatic gain control as taught by the art of record, is not concerned with measured received signal strength and bit error rate. Applicants' claim 1 is different than the prior art, because the recitation of changing the operation start point of a variable gain circuit **in response to** the measured received signal strength and bit error rate ("*varies in operation starting point of a variable gain circuit* ***in response to*** *the detected electric field strength and the measured error*"). Applicants' feature as recited by claim 1 is disclosed on page 15, lines 5-18, of the specification were a DC offset is added to the automatic gain control **in response to** high error ratio and detected electric field ("*it is judged that a high interference rate exists in the vicinity ... as a DC offset ... to increase the strength against an interference wave*"). This feature is also shown in Fig. 4, where the operation start point of variable gain circuits 110, 117 and 118 are controlled by operation start point controlling circuit 135.

Accordingly, for the reasons set forth above, Applicants' claim 1 is patentable over the art of record.

Claim 2 includes all the features of claim 1 from which it depends. Thus, claim 2 is also patentable over the art of record for the reasons set forth above.

In view of the arguments set forth above, the above identified application is in the condition for allowance, which action is respectfully requested.

Respectfully submitted,

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